

MITIGATION
BLENDED

PROJECT NAME	KaXu Solar One CSP Project¹
COUNTRY/REGION	South Africa
SECTOR	Renewable Energy
PROJECT/INVESTMENT AMOUNT	Total Cost: USD 903.08 million (2020) First draw down occurred in 2022.
DEVELOPMENT PARTNER(S)/STAKEHOLDERS	Development Bank of South Africa; European Investment Bank (EIB); IFC; Clean Technology Fund (CTF); Industrial Development Corporation (IDC) ²
COUNTERPARTY MINISTRY/ INSTITUTION	N/A
INVESTOR(S) AND FUNDERS	Commercial Banks - Nedbank; FirstRand Bank, DFIs - Development Bank of South Africa; European Investment Bank (EIB); IFC; Clean Technology Fund (CTF);, Industrial Development Corporation (IDC); Abengoa; KaXu Community Trust ³
GUIDEBOOK TAXONOMY FINANCIAL SYSTEM ACTOR	Private Debt Providers Bilateral, Multilateral & Development Finance Institutions
PROJECT OVERALL GOAL	The overall goal of the Project was the financing and development of a 100-megawatt (MW) concentrated solar power (CSP) plant in the Northern Cape Province in South Africa. ⁴ The CSP plant, which is the first to utilize parabolic trough technology in South Africa, has an output capacity of 320 gigawatt hours per year (GWh/year) – equivalent to serving approximately 80,000 South African homes (approximately 400,000 South Africans). ⁵
PROJECT OUTCOMES	Financing and development of the KaXu Solar One renewable energy project in Northern Cape Province, South Africa.
ALIGNMENT WITH COUNTRY IDENTIFIED CLIMATE STRATEGIES, NDCs, ETC. (IF APPLICABLE)	Aligned with renewable energy production and financing goals outlined in South Africa's updated NDC. ⁶
CONTRIBUTION OF THE PROJECT TO THE UN SDGs	<ul style="list-style-type: none"> • SDG 7 - Affordable and Clean Energy; • SDG 13 - Climate Action⁷
SOCIOECONOMIC IMPACT	Construction of the Project started in November of 2012, and it is estimated that the Project generated approximately 4,500 construction jobs as well as 80 permanent jobs associated with facility operations, maintenance, etc., in the Northern Cape Province (an impoverished province in South Africa with a high youth unemployment rate). ⁸ Additionally, the large solar project is a vital investment in increasing South Africa's overall energy security.
ENVIRONMENTAL IMPACT (ON CLIMATE MITIGATION AND/OR ADAPTATION)	As stated above, the 100 MW CSP plant will have an output capacity of 320 GWh/year, which is equivalent to <u>offsetting 315,000 tons of CO₂ emissions per year</u> . ⁹

¹ This case was provided by Climate Finance Advisors (CFA) as a contribution to the Sharm El-Sheikh Guidebook for Just Financing

² Power Technology. [KaXu Solar One, Northern Cape](#). April 2015.

³ Ibid

⁴ Renewable Technology. [KaXu Solar One, Pofadder, Northern Cape](#). 2022.

⁵ UNFCCC. [KaXu Solar One I South Africa](#). 2022

⁶ Republic of South Africa. [First Nationally Determined Contribution Under the Paris Agreement](#). September 2021.

⁷ UN Department of Economic and Social Affairs. [The 17 Goals](#).

⁸ Renewable Technology. [KaXu Solar One, Pofadder, Northern Cape](#). 2022.

⁹ Power Technology. [KaXu Solar One, Northern Cape](#). April 2015.

ENABLING ENVIRONMENT (SUPPORTING POLICIES)	The project aligns broadly with South Africa's renewable energy goals and targets, including South Africa's 2019 Integrated Resource Plan renewable energy targets (an increase to 41% renewable energy generation by 2030). ¹⁰
TECHNICAL ASSISTANCE (IF PROVIDED)	Development partners provided assistance in the innovative blended finance structure of the project, which subsequently resulted in additional commercial investors. ¹¹
FINANCING MODEL/APPROACH (EX: BLENDED FINANCE)	Blended Finance
RATIONALE FOR FINANCING MODEL/APPROACH	The concessional financing (including approximately USD 108 million in local currency financing by CTF) allowed for commercial investors (such as Nedbank) to invest in the project. ¹²
FINANCIAL INSTRUMENT(S) (LOANS (COMMERCIAL/ CONCESSIONAL), EQUITY, GUARANTEE)	Commercial loans from South African banks Nedbank and First Rand Bank, concessional loans (including USD 125 million from IFC)
DIAGRAM OF THE FINANCING STRUCTURE	N/A

Executive Summary: The overall goal of the Project was the financing and development of a 100 megawatt (MW) concentrated solar power (CSP) plant in the Northern Cape Province in South Africa (KaXu Solar One CSP Project).¹³ The CSP plant, which is the first to utilize parabolic trough technology in South Africa, has an output capacity of 320 gigawatt hours per year (GWh/year) – equivalent to serving approximately 80,00 South African homes (approximately 400,000 South Africans).¹⁴ The Project is projected to result in the offset of 315,000 tons of CO₂ emissions per year and be a key factor in helping reach South Africa's renewable energy goals. Construction of the Project started in November of 2012, and it is estimated that the Project generated approximately 4,500 construction jobs as well as 80 permanent jobs associated with facility operations, maintenance, etc., in the Northern Cape Province (an impoverished province in South Africa with a high youth unemployment rate).¹⁵ Additionally, the large solar project is a vital investment to increasing South Africa's overall energy security.

Analysis

WHAT MADE THIS PROJECT SUCCESSFUL?	Addressing climate mitigation goals: The Project is projected to result in <u>the offset of 315,000 tons of CO₂ emissions per year</u> , thereby contributing to South Africa's national renewable energy goals and targets. Addressing barriers to investment: Concessional financing brought in additional private investors by, in part, reducing the financial burden of solar power tariffs on electricity prices in South Africa. ¹⁶ Ownership structure: The Project includes 20% ownership by the local community (KaXu Community Trust). ¹⁷
TO WHAT EXTENT IS THIS MODEL SCALABLE?	The Project/project type is likely moderately scalable due to the complexity in financing such a large renewable energy infrastructure project with numerous project financiers and partners.
WHAT ARE THE NECESSARY CONDITIONS TO MAKE IT REPLICABLE IN OTHER COUNTRIES/REGIONS?	Countries that would want to pursue a similar project would need clear renewable energy generation goals and targets, and the national and regional capacity/resources to assist in the facilitation of such a project. Capital market and banking market depth required. Secured revenue stream from utility off-taker to ensure debt service and engage commercial lenders.
CONSTRAINTS/DRAWBACKS OF FINANCING MODEL	Numerous financiers and development partners can result in a prolonged project development process.

¹⁰ Climate Policy Lab. [South Africa's 2019 IRP Renewable Energy Targets](#). May 2020.

¹¹ UNFCCC. [KaXu Solar One I South Africa](#). 2022

¹² Ibid

¹³ Renewable Technology. [KaXu Solar One. Pofadder, Northern Cape](#). 2022.

¹⁴ UNFCCC. [KaXu Solar One I South Africa](#). 2022

¹⁵ Renewable Technology. [KaXu Solar One. Pofadder, Northern Cape](#). 2022.

¹⁶ IFC. [IFC Invests in Sub-Saharan Africa's First Concentrating Solar Power Plants](#). November 2012.

¹⁷ Renewable Technology. [KaXu Solar One. Pofadder, Northern Cape](#). 2022.



LESSONS LEARNT

- Very large renewable energy projects require multiple sources of financing
- Concessional financing can attract commercial investors, such as through the reduction in the financial burden from solar power tariffs